

### REMARKS

This is a full and timely response to the final Office Action mailed by the U.S. Patent and Trademark Office on March 14, 2007.

Claims 1-6, 8-15, 17 and 18 are pending in the present application. Claims 1 and 13 are amended. Support for the amendments to claims 1 and 13 can be found in FIGs. 3-7 and the related description. Accordingly, no new matter is added.

In view of the foregoing amendment and following remarks, reconsideration and allowance of the present application and claims are respectfully requested.

#### **Rejections Under 35 U.S.C. § 102**

Claims 13 and 15 stand rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by U.S. Patent Application Publication No. 2003/0147652 to Green (hereafter *Green*).

A proper rejection of a claim under 35 U.S.C. § 102 requires that a single prior art reference disclose each element of the claim. *See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983). Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *See, e.g., In re Paulsen*, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). Alternatively, anticipation requires that each and every element of the claimed invention be embodied in a single prior art device or practice. *See, e.g., Minnesota Min. & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992). The test is the same for a process. Anticipation requires identity of the claimed process and a process of the prior art. The claimed process, including each step thereof, must have been described or embodied, either expressly or inherently, in a single reference. *See, e.g., Glaverbel S.A. v. Northlake Mkt'g & Supp., Inc.*, 45 F.3d 1550, 33 USPQ2d 1496 (Fed. Cir. 1995). Those elements must either be inherent or disclosed expressly. *See, e.g., Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 7 USPQ2d 1057 (Fed. Cir. 1988); *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). Those elements must also be arranged as in the claim. *See, e.g., Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986). For anticipation, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *See, e.g.,*

*Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ2d 1001 (Fed. Cir. 1991).

Accordingly, the single prior art reference must properly disclose, teach or suggest each element of the claimed invention.

Applicant has amended claim 13 to recite “*receiving the light from each light source directly in a first common collimating lens*,” and “directing the light from the light sources with a second common collimating lens *directly* to corresponding detectors in an array of detectors in the second module.” Applicant respectfully submits that at least these features are not disclosed by *Green*. *Green* discloses a telescope 37 having a concave lens 39 and a convex lens 41. The light emitted from the emitter array 135 must first pass through the concave lens 39 before impinging on the concave lens 41. According to *Green*, “the modulated light beams 36 are first incident on the concave lens 39, which diverges the light beams 36, and then the convex lens 41 which substantially re-collimates the light beams 36.” See *Green*, par. 0035.

Applicant respectfully submits that *Green* requires the light to first pass through a concave lens 39 and does not disclose at least Applicant’s “*receiving the light from each light source directly in a first common collimating lens*,” and “directing the light from the light sources with a second common collimating lens *directly* to corresponding detectors in an array of detectors in the second module.”

Claim 15, which depends from claim 13, further requires that the first common collimating lens not only directs the light from each light source to a second module but also directs light from the second module back to an array of detectors in the first module. The Office Action points to FIG. 13 as providing this teaching. Applicant submits that the only element that collimates light from the light source 177 shown in Figure 13 is the micro-lens array 191, and that this element 191 plays no part in directing light back from the second module to the detector array 175. Indeed, the light from the second module does not reach element 191. Hence, Applicant submits that this additional limitation of claim 15 is not taught by *Green*, and hence, there are additional reasons for allowing claim 15.

Accordingly, Applicant respectfully submits that independent claim 13 is allowable over *Green*. Further, Applicant respectfully submits that dependent claim 15 is allowable for at least the reason that it depends directly from allowable independent claim 13. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (Citations omitted).

## Rejections Under 35 U.S.C. § 103

### Claims 1, 2, 5, 11 and 18

Claims 1, 2, 5, 11 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Green*. For a claim to be properly rejected under 35 U.S.C. § 103, “[t]he PTO has the burden under section 103 to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicant has amended claim 1 to recite “a first common collimating lens for **receiving the light directly from each light source and for** directing the light from each light source to a second module,” and “a second common collimating lens for directing the light from the light sources **directly** to corresponding detectors in the array of detectors.” Applicant respectfully submits that at least these features are not disclosed, taught nor suggested by *Green*. As mentioned above, *Green* discloses a telescope 37 having a concave lens 39 and a convex lens 41. The light emitted from the emitter array 135 must first pass through the concave lens 39 before impinging on the concave lens 41. According to *Green*, “the modulated light beams 36 are first incident on the concave lens 39, which diverges the light beams 36, and then the convex lens 41 which substantially re-collimates the light beams 36.” See *Green*, par. 0035.

Applicant respectfully submits that *Green* requires the light to first pass through a concave lens 39 and does not disclose at least Applicant's “first common collimating lens for **receiving the light directly from each light source and for** directing the light from each light source to a second module,” and “a second common collimating lens for directing the light from the light sources **directly** to corresponding detectors in the array of detectors.”

Accordingly, Applicant respectfully submits that independent claim 1 is allowable

over *Green*. Further, Applicant respectfully submits that dependent claims 2, 5, 11 are allowable for at least the reason that they depend directly from allowable independent claim 1; and that dependent claim 18 is allowable because it depends directly from allowable claim 13. *In re Fine*, supra.

#### Claims 3, 4, 9 and 10

Claims 3, 4, 9 and 10 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Green* in view of U.S. Patent Application Publication No. 2004/0033078 to Kube *et al.* (hereafter *Kube*).

Regarding claims 3 and 9, the Office Action states that *Green* discloses all the limitations of the claims except for specifying that the light sources and detectors are spaced apart by 50 microns. The Office Action looks to *Kube* for the missing teachings. The Office Action maintains that it would have been obvious to space the transmitters and receivers in the arrays of *Green* “within tens of microns in order to reduce the size of the optical components and allow a larger number of components in the same array space, as suggested by *Kube*.”

First, as noted above with respect to claim 1, from which claims 3 and 9 depend, *Green* does not teach the limitations of the claims relating to the first common collimating lens for receiving the light directly from each light source and for directing the light from each light source to a second module and the second common collimating lens for directing the light from the light sources directly to corresponding detectors in the array of detectors. *Kube* does not provide the missing teachings.

Second, Applicant disagrees with the reading of *Kube* in the Office Action as providing the teachings relating to the spacing of sources and detector. Paragraph 0043 in *Kube*, to which the Office Action points, relates not to the spacing of the components being within tens of microns, but to the *tolerances* within which the components are positioned (line 8) to achieve those spacing. In other words, the actual spacing of the components may be much larger. Accordingly, *Kube* does not teach the required spacing.

Applicant respectfully submits that the Office Action has failed to make a *prima facie* case for obviousness with respect to claims 3 and 9.

With regard to claims 4 and 10, as noted above with respect to claim 1, from which claims 4 and 10 depend, *Green* does not teach the limitations of the claims relating to the first

common collimating lens for receiving the light directly from each light source and for directing the light from each light source to a second module and the second common collimating lens for directing the light from the light sources directly to corresponding detectors in the array of detectors. *Kube* does not provide the missing teachings.

Applicant respectfully submits that the Office Action has failed to make a *prima facie* case for obviousness with respect to claims 4 and 10.

Further, Applicant respectfully submits that dependent claims 3, 4, 9 and 10 are allowable for at least the reason that they depend directly from allowable independent claim 1. *In re Fine*, supra.

#### Claims 6, 12, 14 and 17

Claims 6, 12, 14 and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Green* in view of U.S. Patent Application Publication No. 2002/0141011 to *Green et al.* (hereafter *Green2*).

Regarding claims 6 and 12, as noted above with respect to claim 1, from which claims 6 and 12 depend, *Green* does not teach the limitations of the claims relating to the first common collimating lens for receiving the light directly from each light source and for directing the light from each light source to a second module and the second common collimating lens for directing the light from the light sources directly to corresponding detectors in the array of detectors. *Green2* does not provide the missing teachings. Applicant respectfully submits that the Office Action has failed to make a *prima facie* case for obviousness with respect to claims 6 and 12.

Regarding claims 14 and 17, as noted above with respect to claim 13, from which claims 14 and 17 depend, *Green* does not teach the limitations of the claims relating to receiving the light from each light source directly in a first common collimating lens, and directing the light from the light sources with a second common collimating lens directly to corresponding detectors in an array of detectors in the second module. *Green2* does not provide the missing teachings. Applicant respectfully submits that the Office Action has failed to make a *prima facie* case for obviousness with respect to claims 14 and 17.

Applicant further respectfully submits that dependent claims 6 and 12 are allowable for at least the reason that they depend directly from allowable independent claim 1; and that claims 14 and 17 are allowable for at least the reason that they depend directly from allowable independent claim 13. *In re Fine*, supra.

Claim 8

Claim 8 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Green* in view of U.S. Patent Application Publication No. 2002/0071160 to Pavelchek *et al.* (hereafter *Pavelchek*).

Regarding claim 8, the Office Action stated that *Green* discloses all the limitations of the claim except for the array of detectors comprising an array of positive-intrinsic-negative (PIN) photodiodes. The Office Action applies *Pavelchek* to cure the defects of *Green*. The Office Action maintains that it would have been obvious to use PIN photodiodes for the photodiodes of *Green*, because PIN photodiodes are less complicated to implement than other types of photodiodes.

Applicant respectfully disagrees with the reading of *Green* in the Office Action. As noted above with respect to claim 1, from which claim 8 depends, *Green* does not teach the limitations of the claim relating to the first common collimating lens for receiving the light directly from each light source and for directing the light from each light source to a second module and the second common collimating lens for directing the light from the light sources directly to corresponding detectors in the array of detectors. *Pavelchek* does not provide those missing teachings. Applicant respectfully submits that the Office Action has failed to make a *prima facie* case for obviousness with respect to claim 8. Applicant further respectfully submits that dependent claim 8 is allowable for at least the reason that it depends directly from allowable independent claim 1. *In re Fine*, supra.

CONCLUSION

Should the Examiner have any comments regarding the Applicant's response or believe that a teleconference would expedite prosecution of the pending claims, Applicant requests that the Examiner telephone Applicant's undersigned attorney.

Respectfully submitted,

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